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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------------------|-----------------------------|
| 10/591,283 | 08/31/2006 | Andre Burghardt | 294926US0PCT | 9403 |
| 22850 | 7590 | 06/12/2008 | | |
| OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | EXAMINER USELDING, JOHN E | |
| | | | ART UNIT 4171 | PAPER NUMBER |
| | | | NOTIFICATION DATE 06/12/2008 | DELIVERY MODE ELECTRONIC |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/591,283 | Applicant(s) BURGHARDT ET AL. | |
| | Examiner John Uselding | Art Unit 4171 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-37 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 18-37 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/29/06</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 101

Claims 27-28 and 33-34 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 112

1. Claims 27-28 and 33-34 provide for the use of a thiocarbamide, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 18-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haberle et al. (DE 10000656) in view of Horodysky (5,160,507). US 2003/0088030 is being used as an English language equivalent for DE 10000656 since it is a part of the patent family.

4. Applicant claims a thiocarbamide comprising one carbodiimide group and at least one thiocarbamic ester group (claims 18-28). Applicant claims that the thiocarbamide further comprises hydrophilic groups (claim 19). Applicant claims a polymer dispersion containing the thiocarbamide (claims 29-32) and a substrate coated with the dispersion (claims 35-37).

5. Haberle et al. teach carbodiimide derivate that contains a carbodiimide group and a carbamic ester group. They teach that the carbodiimide derivative may contain hydrophilic groups that are polyalkylene oxide groups (paragraphs 0067-0078 and claim 5). The carbodiimide derivatives are made from isocyanates (paragraph 0022) and carboxylic acids (paragraph 0029). The carbodiimides are derived from 4-20 carbon polyisocyanates (paragraph 0022). Haberle et al. teach 80-1200mmol/kg of hydrophilic groups based on all of the monomers (paragraph 0077). It is obvious to optimize the amount of hydrophilic groups based on the carbodiimide derivative. Haberle et al. teach an aqueous polymer dispersion comprising a carbodiimide derivative to polymer weight ratio of from 0.005:1 to 1:1 (paragraph 0059). It is obvious to select the overlapping portion of the ranges. They teach using polyurethane as the polymer (paragraph 0081), and that their polymer contains carboxylic acid groups (paragraph 0092). Haberle et al. also teach their polymer dispersion coated on a substrate (paragraph 0122).

6. What Haberle et al. fails to teach is a thiocarbamic ester group (-HN-CO-S-) in their carbodiimide derivative. Instead they teach a carbamic ester group (-HN-CO-O-). The difference being that the applicants substituted sulfur for oxygen in the ester.
7. Horodysky et al. teach the principle that sulfur ester moieties possess significantly improved thermal and oxidative stability properties when compared to their non-sulfur ester containing analogs (column 1, lines 43-45).
8. It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute sulfur for the oxygen in the carbodiimide derivative of Haberle et al. to make a carbodiimide derivative with improved thermal and oxidative stability. Oxygen and sulfur are both chalcogens and are essentially interchangeable elements in this capacity. The applicant has made allegations to unexpected results. Those being and improved peel strength and thermal stability. These are not unexpected since one of ordinary skill in the art would expect an increase in thermal stability, and hence peel strength under increased temperature, when a sulfur ester was used instead of a non-sulfur ester.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Uselding whose telephone number is (571)270-5463. The examiner can normally be reached on Monday-Thursday 6:00a.m. to 4:30p.m. EST.

Art Unit: 4171

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on 571-272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art Unit 4171

John Uselding
Examiner
Art Unit 4171

/JEU/